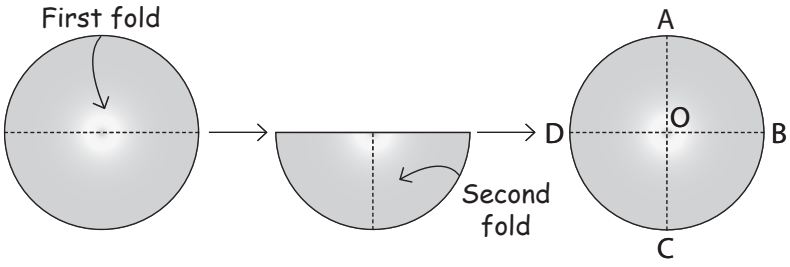
Activities

A To find the parts of a circle by folding paper.

Conceptual Understanding, Creativity, Collaboration

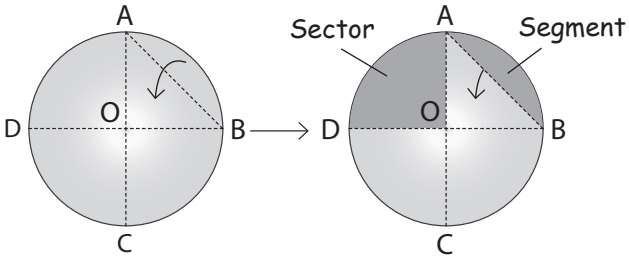
YOU WILL NEED: a sheet of plain paper, an eraser, crayons, a compass, a pencil, a pair of scissors

1. Take a sheet of plain paper. Draw a circle of any suitable radius on it.
2. Cut out the circle.
3. Fold the circle in half. Fold it again as shown.



4. Press down the folds to crease them. Open the folds.
5. Draw line segments along the crease.
6. Mark the points A, B, C, D and O as shown in the figure.
7. The point O is the centre of the circle.
8. The line segments AC and BD are the diameters of the circle.
9. AO, BO, CO and DO are its radii.

10. Fold along the points A and B. Crease and open the fold. Draw a line segment AB along the crease. AB is the chord.
11. Colour the area above the chord AB. This is the segment.
12. Colour the area between the radii OA and OD.
    This is the sector of the circle.
13. Look at the circle and fill in the blanks.



OBSERVATION:

Fill in the blanks.

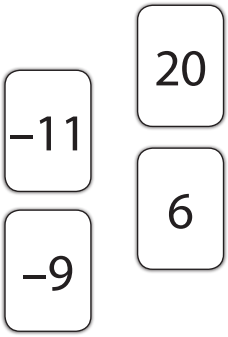
1. A circle consists of an infinite number of _____
2. All radii of a circle are _____
3. The longest chord of the circle is its _____
4. A line segment whose endpoints lie on the circle is the _____
5. A _____ is a part of a circle that is enclosed by a chord and an arc.
6. The part of a circle enclosed by an arc and a pair of radii that join the endpoints of the arc to the centre of the circle is called a _____ of the circle.

B Play the integer game.

Critical Thinking, Conceptual Understanding, Collaboration

YOU WILL NEED: Number cards from –19 to 20, a pencil, an eraser and a notebook

1. Work with a partner.
2. One student shuffles the cards and shares an equal number of cards with her/his partner.
3. Both the students place their cards face down on a table.
4. Each student picks up two cards and flips them over to show the numbers on the cards.



5. They add the numbers. For example, if Student 1 gets 9 and –3, the sum will be 9 + (–3) = 6. If Student 2 gets 5 and –7, the sum will be 5 + (–7) = –2.
6. One of them draws the given table in the notebook and records the observation.

Student 1	Student 2
9 + (–3) = 6	5 + (–7) = –2

7. They compare the sums. The student whose total is greater than the other keeps all the 4 cards aside.
8. Continue the game till all the cards have been used.
9. The student with the highest number of cards is the winner.

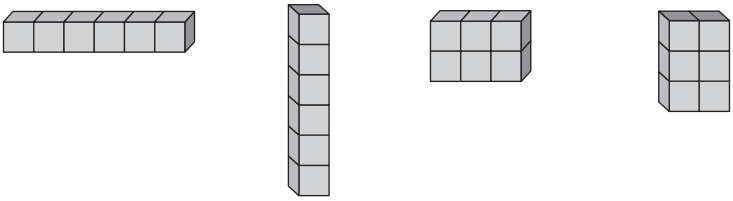
C Find prime or composite numbers.

Experiential Learning, Creativity, Collaboration, Application of Knowledge

YOU WILL NEED: 20 square blocks, a pencil, an eraser and a notebook

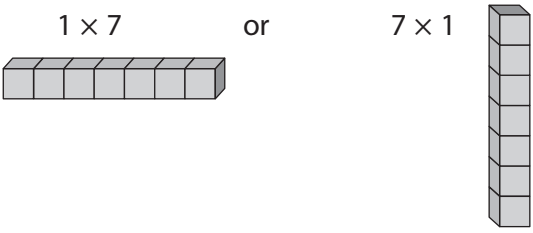
1. Work in pairs.
2. Consider any two numbers from 1 to 20, say, 6 and 7.
3. Student 1 takes 6 blocks and arranges them to form a rectangle or a square.

1×6 or 6×1 and 2×3 or 3×2



4. It is possible to arrange these 6 blocks to form two distinct rectangles. So, the factors of 6 are 1, 2, 3 and 6. Thus 6 is a composite number.
5. Student 2 takes 7 blocks and arranges them to form a rectangle.

1×7 or 7×1



6. It is possible to arrange these 7 blocks to form only one distinct rectangle. So, the factors of 7 are 1 and 7. Thus 7 is a prime number.
7. Try with other numbers, say 9, 11 and so on, and write your observations in the given table.

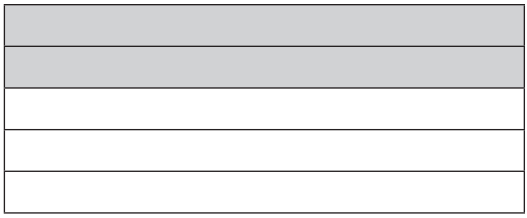
Number of blocks	Possible number of distinct rectangles or squares	Factors of the given number of blocks	Prime number or Composite number

D Find the product of any two fractions.

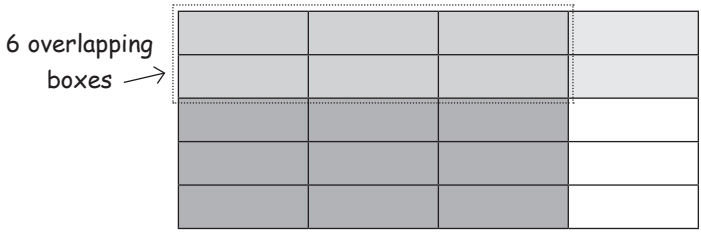
Experiential Learning, Creativity, Conceptual Understanding

YOU WILL NEED: A sheet of paper, coloured pencils, a pencil, an eraser and a notebook

1. Consider any two fractions to be multiplied, say $\frac{2}{5}$ and $\frac{3}{4}$.
2. To represent the first fraction, that is $\frac{2}{5}$, draw a rectangle and divide it into five equal rows. Colour two of the five rows.



To represent the second fraction, that is $\frac{3}{4}$, divide the same rectangle into four equal columns. Colour three of the four columns with another colour.



3. Count the number of overlapping boxes in the rectangle. Here, it is 6. This is the product of the numerators of the two fractions, that is, $2 \times 3 = 6$.

   Count the total number of boxes the rectangle is divided into. Here, it is 20. This is the product of the denominators of the two fractions, that is, $5 \times 4 = 20$. Hence, the product of $\frac{2}{5} \times \frac{3}{4} = \frac{6}{20}$.

Similarly, find the product of the given fractions.

1. $\frac{3}{7} \times \frac{1}{3}$ 2. $\frac{4}{5} \times \frac{2}{3}$ 3. $\frac{4}{7} \times \frac{2}{9}$

Projects

A Measure and convert.

Application of Knowledge, Collaboration, Conceptual Understanding

Measure and record the height (in centimetres) and mass (in kilograms) of any 5 of your classmates. Draw a table as shown and fill in the collected information in columns B and C.

Col A	Col B	Col C	Col D	Col E
Classmate	Height (in cm)	Mass (in kg)	Height (in m)	Mass (in g)

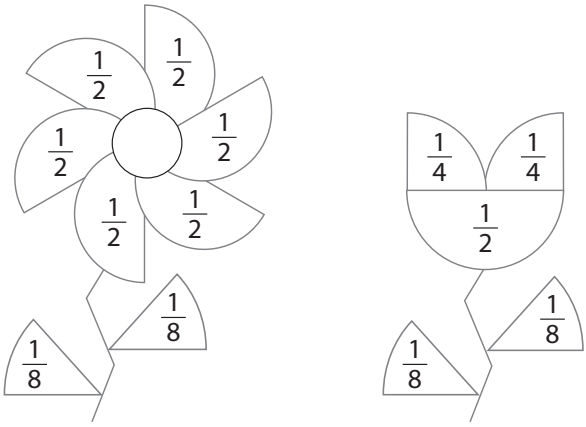
Then convert the height to metres and the mass to grams, and fill them in columns D and E.

B Make flowers to represent fractions.

Creativity, Collaboration, Conceptual Understanding

1. Work in groups of three. Take sheets of paper in different colours to make flowers. Use green paper to make the leaves.
2. Draw circles of any suitable radius on the sheets. Divide each circle into different numbers of equal parts to represent different fractions. For example, divide a circle into eight equal parts so that each part will represent $\frac{1}{8}$. Write the fraction on each part and cut out each part.

3. Paste these parts on a sheet of chart paper to form different flowers and leaves as shown. Draw the stem with a green marker. Display these flowers on the class bulletin board.



C 3-D shapes

Conceptual Understanding, Experiential Learning, Collaboration, Critical Thinking

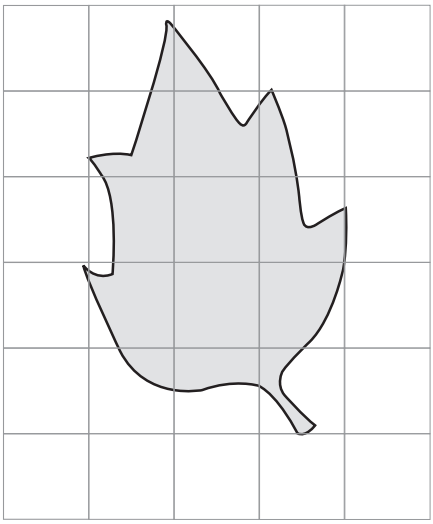
Cut out a few pictures of 3-D objects such as a shoe box, birthday cap, pastry box, empty carton, matchbox, dice, basketball, prism and ice-cream cone from old magazines and newspapers. Draw a table as shown on chart paper. Paste the pictures under the first column and fill in the table.

Pictures of 3-D objects	Name of the shape	Rough sketch	Number of faces	Number of edges	Number of vertices
					
					
					
					
					

Present your table in the class.

D Find the area of an irregular figure (leaf) using a sheet of squared paper.

Experiential Learning, Application of Knowledge, Creativity, Multidisciplinary Approach



1. Place a fallen leaf on a sheet of squared paper.
2. Trace its outline on the paper with a pencil. Remove it.
3. Colour the squares that lie completely inside the outline of the leaf red. If more than half a square is covered, count it as a complete square and colour it red as well.
4. Colour the half squares green.
5. Leave out the squares that are less than a half.
6. Count the squares.

   The number of red squares = x
   The number of green squares = y

   So, the approximate area of the leaf = $\left(x + \frac{1}{2}y\right)$ sq. units

FIND:

The number of red squares = _____

The number of green squares = _____

The approximate area of the leaf = _____

Similarly, trace the outline of leaves of different plants on squared paper and find their area. Show them in the class and discuss.